

## **REMARKS**

In the Office Action, the Examiner rejected Claims 1-19, which were all of the then pending claims, under 35 U.S.C. 101 as directed to non-statutory subject matter, under 35 U.S.C. 112 as being indefinite, and under 35 U.S.C. 102 as being fully anticipated by U.S. Patent application publication no. 2004/0123,180 (Soejima, et al.).

Independent Claims 1, 8 and 14 are being amended to better define the subject matters of these claims. Also, new Claim 20, which is dependent from Claim 1, is being added to describe an optional feature of the present invention.

For the reasons discussed below, all of Claims 1-20 define statutory subject matter within 35 U.S.C. 101, are clear and definite under 35 U.S.C. 112, and also patentably distinguish over the prior art. The Examiner is thus respectfully asked to reconsider and to withdraw the rejections of Claims 1-19 under 35 U.S.C. 101, 102 and 112, and to allow these claims and new Claim 20.

In rejecting the claims under 35 U.S.C. 101 and 112, the Examiner noted that the preambles of the independent Claims 1, 8 and 14 recite Apairing objects for the purpose of copying data,@ however the bodies of these claims do not include any steps of Apairing objects@ and Acopying data.@ In addition, the Examiner argued that it is not clear how, as described in the claims, the Apairing objects@ and Acopying data@ are executed.

The preambles of the independent claims 1, 8 and 14 are being amended to indicate that the claims are directed to Apairing source and target volumes for the purpose of copying data.@ The bodies of these claims are also being amended to indicate more clearly how the pairing is done. For instance, Claim 1 describes the steps of graphically depicting representations of storage resources in a single view, and selecting a pair of said storage resources using said single

view, including identifying one of said pair as the source volume from which data are to be copies, and identifying the other of said pair as the target volume to which the data are to be copies.

As presented herein, Claims 1, 8 and 14 set forth the functions needed to achieve the pairing and copying described in the preambles of the claims, and indicate how this pairing and copying are executed. Consequently, these claims, and the claims dependent on them, are directed to statutory subject matter within the meaning of 35 U.S.C. 101 and also are clear and definite under 35 U.S.C. 112.

Accordingly, the Examiner is respectfully requested to reconsider and to withdraw the rejections of Claims 1-19 under 35 U.S.C. 101 and 112.

In addition, Claims 1-20 also patentably distinguish over the prior art because the prior art does not disclose or suggest selecting a pair of source and target volumes, and, after this pair has been selected, implementing checks to determine if the selected pair satisfy predefined rules, as described in the independent Claims 1, 8 and 14.

The instant invention, generally, relates to paring source and target volumes for the purpose of copying data from the source volume to the target volume. More specifically, the invention provides a user-friendly way, using a graphical user interface, to enable a user to pair the source and target volumes.

As discussed in detail in the present application, many organizations rely heavily on data and on having quick access to the data. For this reasons, mirroring or copying data may be used to minimize the time in which access to data is lost or unavailable. With many presently available techniques to mirror or copy data, a user is required to establish a pair of volumes.

Current techniques for doing this may require operator intensive actions to set up the necessary pairs of volumes. These techniques may be time consuming and difficult to learn.

The present invention effectively addresses these issues. Generally, this is done by providing the user with a user-friendly technique to identify the source and target volumes.

More specifically, with the preferred embodiment of the invention, representations of storage resources are graphically depicted in a single view, and a pair of the storage resources is selected using that single view. This is done by identifying one of the pair as the source volume and identifying the other of the pair as the target volume.

After this pair is selected, checks are implemented to determine if the pair satisfies predefined rules. Alert messages are sent, regarding the selected pair, if that pair does not satisfy the predefined rules. Preferably, a user manually selects the source and target volumes. The preferred embodiment of the invention thus provides a user-friendly procedure, which employs the users knowledge or expertise, to identify appropriate source and target volumes.

As indicated above, the prior art does not disclose or suggest selecting a pair of source and target volumes, and, after this pair has been selected, implementing checks to determine if the selected pair satisfies predefined rules.

In particular, Soejima, et al, which is the only reference relied on by the Examiner to reject the claims, describes a failover type cluster system in which data may be copied from a source volume to a destination volume. The procedure of Soejima, et al. Is directed to selecting the destination volume so that the performance of the destination volume is equal to or higher than the performance of the source volume.

To achieve this, the procedure disclosed in Soejima, et al. is used to determine whether two conditions are satisfied. The first is whether the performance of the destination volume after a failover is equal to or higher than the performance of the source volume before the failover. The second condition is whether the performance of the destination volume is equal to or higher than the performance of the source volume during the copy. If one or both of these conditions is not satisfied, then the storage apparatus in which the destination volume is defined is modified in configuration to satisfy the condition or conditions.

The procedure of Soejima, et al. takes a specific approach - that is, conditions are tested before a source and destination volume are paired, and if those conditions are not satisfied, the destination volume, or the storage apparatus in which that volume is defined, is adjusted. The present invention takes a different approach - that is, the source and target volumes are selected, and then checks are implemented to determine if the pairing satisfy predefined rules.

The approach of the present invention relies on the knowledge or expertise of the selector, which preferably is the user, to make appropriate selections. Because the knowledge or expertise of the selector is used, rather than a computer program, the selection process does not require a complex computer process.

The other references of record have been reviewed, and these other references, whether considered individually or in combination, also do not disclose or suggest this feature of the instant invention.

Independent Claims 1, 8 and 14 describe the above-discussed feature of the present invention. More specifically, Claims 1 and 14 describe the step of selecting a pair of storage resources using a single view that graphically depicts representations of the storage resources, including identifying one of said pair as the source volume and identifying the other of the pair

as the target volume. Claims 1 and 14 describe the additional step of, after the pair has been selected, implementing checks to determine if the selected pair satisfies predefined rules.


Claim 8 is directed to a system for pairing source and target volumes for the purpose of copying data from the source volume to the target volume, and this claim describes apparatus limitations corresponding to the above-discussed features of Claims 1 and 14. In particular, Claim 8 describes means for selecting a pair of storage resources using a single view that graphically depicts representations of the storage resources, including identifying one of said pair as the source volume and identifying the other of the pair as the target volume. Claim 8 also describes means for implementing checks, after the pair has been selected, to determine if the selected pair satisfies predefined rules.

Because of the substantial differences between Claims 1, 8 and 14 and the prior art, these claims patentably distinguish over the prior art and are allowable. Claims 2-7 and 20 are dependent from, and are allowable with, Claim 1. Similarly, Claims 9-13 are dependent from Claim 8 and are allowable therewith; and Claims 15-19 are dependent from, and are allowable with, Claim 14. The Examiner is thus asked to reconsider and to withdraw the rejection of Claims 1-19 under 35 U.S.C. 102, and to allow these claims and new Claim 20.

In light of the above-discussion, the Examiner is respectfully requested to reconsider and to withdraw the rejections of Claims 1-19 under 35 U.S.C. 101, 112, and 102, and to allow these claims and new Claim 20.

If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is asked to telephone the undersigned.

Respectfully submitted,

  
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